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Many-electron conductivity of a non-degenerate 2D electron liquid in strong magnetic fields

Leonid Pryadko[1], Mark Dykman[2], Frank Kuehnel[2]

[1] *University of California, Riverside, CA, USA*
[2] *Michigan State University, East Lansing, MI, USA*

We study the low-frequency conductivity of a nondegenerate two-dimensional electron system (2DES) in a quantizing magnetic field. The 2DES is correlated, forming a liquid. The electron-electron interaction (EEI) is taken into account nonperturbatively. It gives rise to a finite static conductivity, which is found for a short-range disorder potential with account taken of multiple scattering. An interplay of the EEI and disorder determines also the shape of the tail of the conductivity for frequencies larger than the width of the Landau band: the energy of a photon goes to the many-electron system, whereas the involved momentum is transferred to defects. The results explain the data on the strong-field magnetoconductivity of electrons floating on helium surface.